Swiss Re

Facing the interest rate challenge

Dr. Kurt Karl, Chief Economist, Swiss Re

PIU conference, May 2014

SWISS RE
150
YEARS

Table of Contents

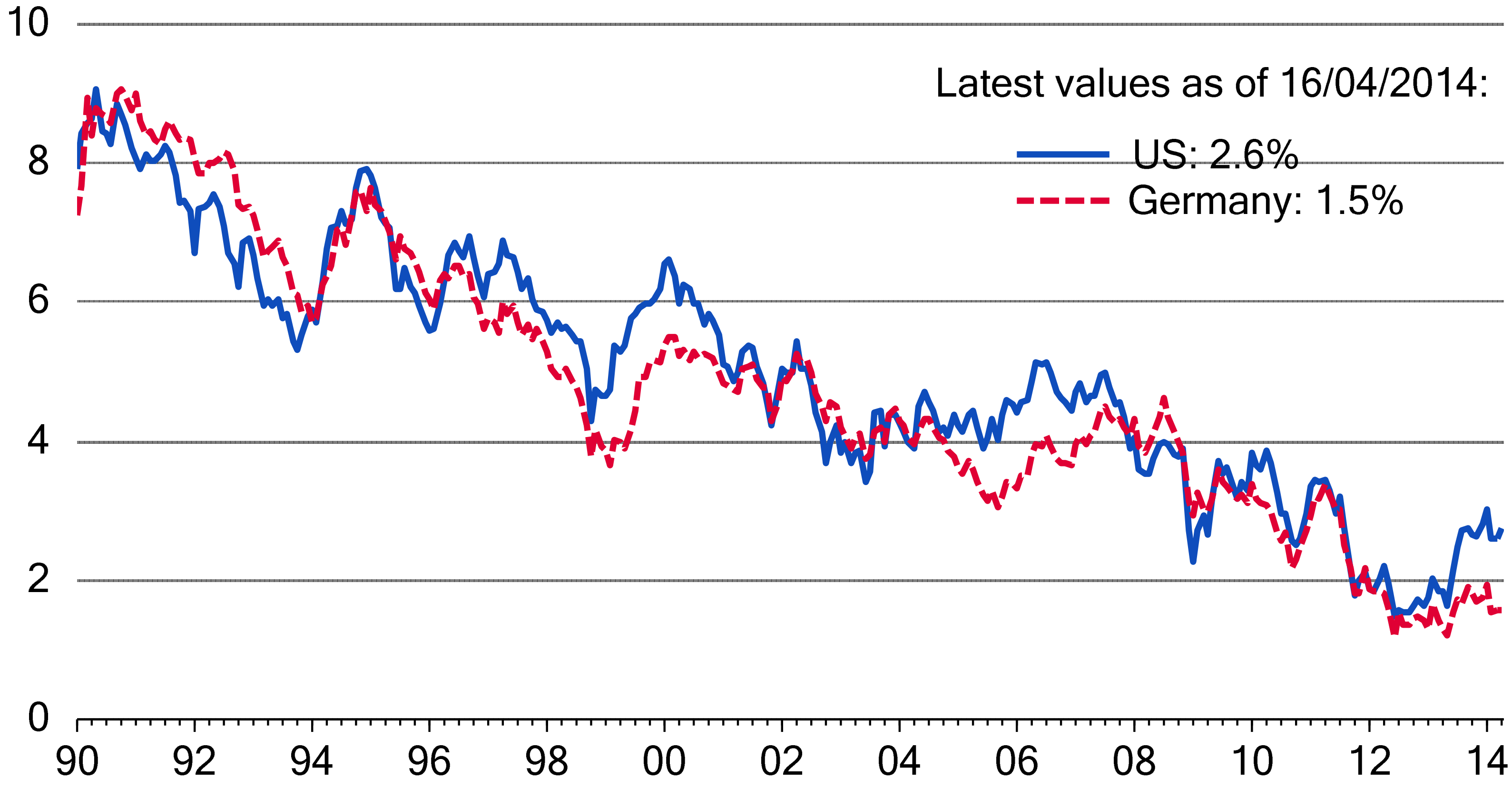
Global outlook and history of interest rates

Global Economic Outlook: moderate growth, low – but rising – interest rates and mild inflation

- Global growth will continue to gradually accelerate this year
  - The US expansion is expected to strengthen in 2014 and further in 2015, driven by consumer spending, business investment and housing construction.
  - Europe is growing again, but tight fiscal and credit conditions will restrain economic activity.
  - Chinese growth expected to remain close to 7.5% for the next few years.
  - Some emerging market economies have been unsettled by the Fed's "tapering", causing a tightening of monetary policy in many economies, but this is unlikely to lead to a debt crisis.
- Easy monetary conditions will continue this year, expect Fed tightening next year
- Inflation risks are well contained for now, but the long-term outlook is more uncertain. Central banks have the tools to control inflation, but they could potentially be constrained by the political need to reduce deficits (eg, Japan!).
- Key short-term economic risks:
  - Europe recovery stalls from either policy error in Euro area (eg, large bank failure) or Ukraine crisis
  - China's debt problems cause credit tightening and hard landing
  - Global monetary tightening derails emerging market growth
  - Oil price shock

The interest rate challenge: Yields have been declining for many years and now are still very low

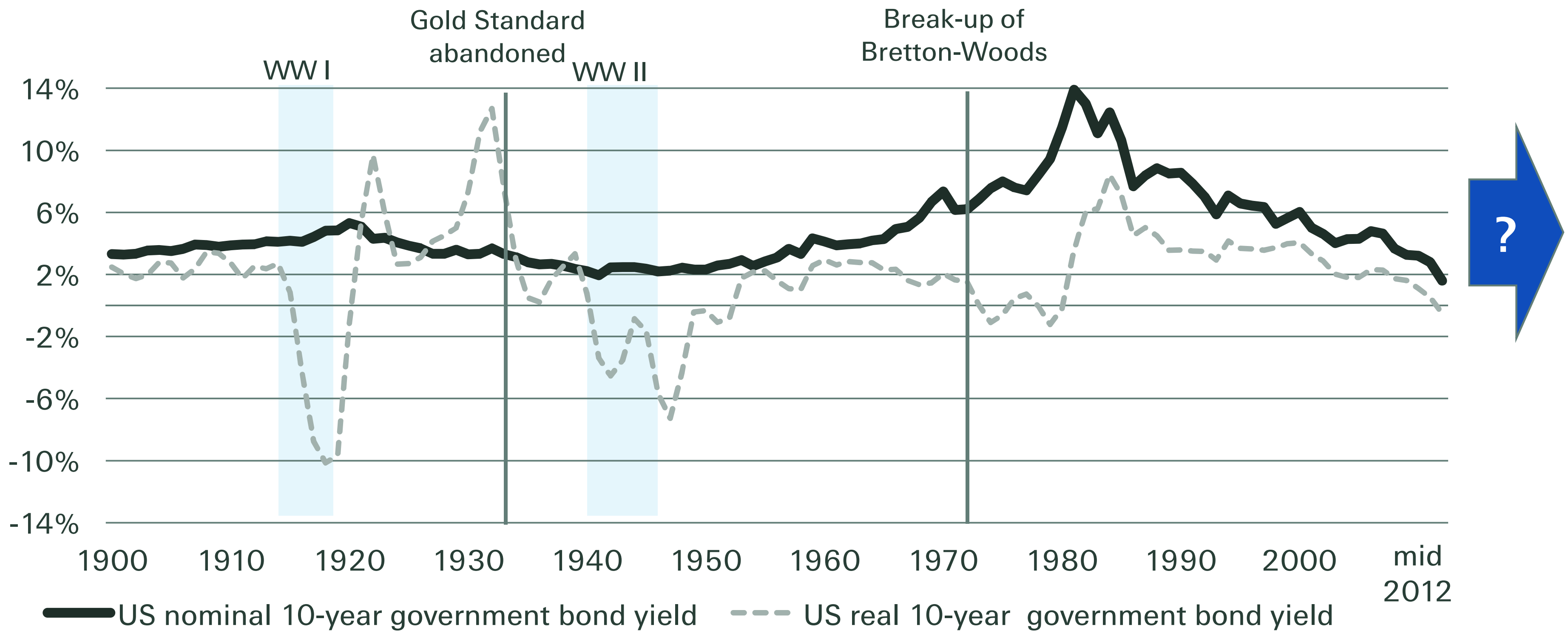
10yr government bond yields, monthly data



Source: Datastream

Interest rates are very low...
...similar to the 1940s and 1950s

US 10y government bond yields (nominal and real)



Though future is uncertain, interest rates likely to rise for a few years

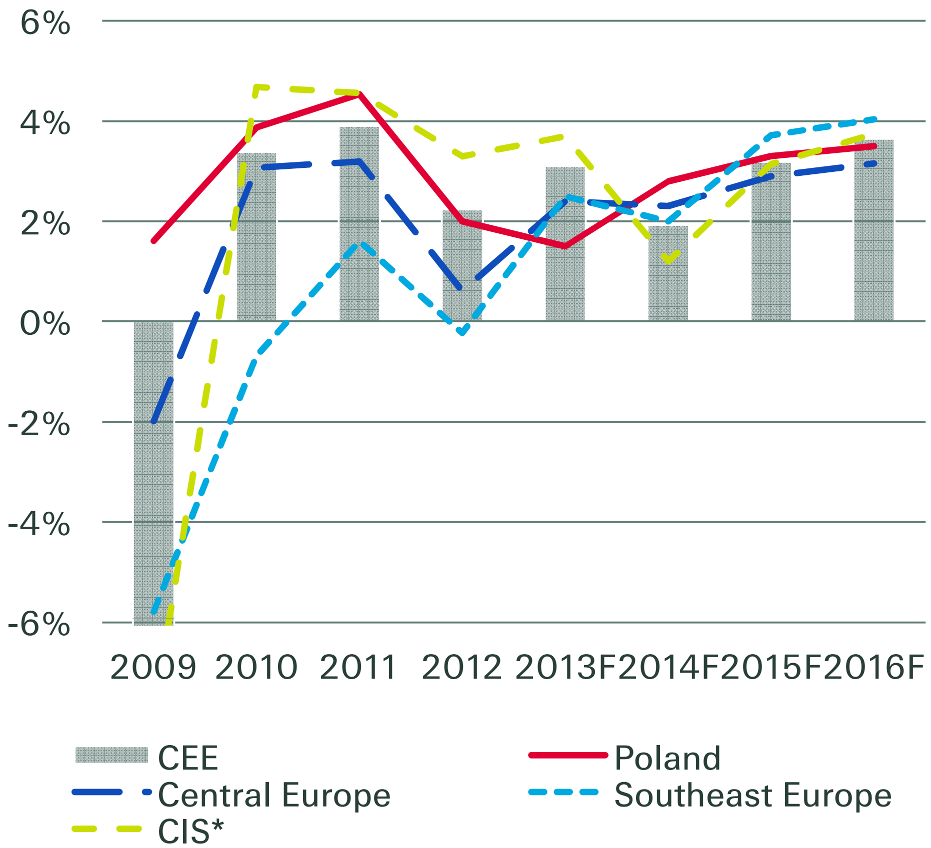
Sources: Datastream; Homer Sidney and Richard Sylla, A History of Interest Rates (New Jersey: Wiley Finance, 2005); Swiss Re Economic Research & Consulting

Swiss Re ER&C interest rate forecast

- Fed begins hiking in 2015, reaches 1.75% on Fed funds rate by end-2015, 3% by end-2016. This is slower than in the glacially slow hiking of 2004-06, which helped cause a housing bubble, so this risk is rising
  - The pace of rate hikes will depend on strength of economic growth and rate of inflation -- 2.5% inflation will certainly be tolerated
- 10-year T-note rises to 3.5% (end-2015), then 4.75% by end-2016
- Tapering will likely end before end of this year. Yellen will continue with policies similar to Bernanke
- Growth will push up interest rates. Thus, if growth is less than expected, then interest rates will stay low for longer (and vice versa!).
- BoE probably soon after Fed, while BoJ only hikes if inflation gets high
- ECB rate hikes unlikely before 2016, due to the sluggish economy

Poland economy:
growth to recover in 2014, but downside risks persist

Real GDP growth



Source: Swiss Re Economic Research & Consulting
* Russia, Ukraine, Kazakhstan

Outlook

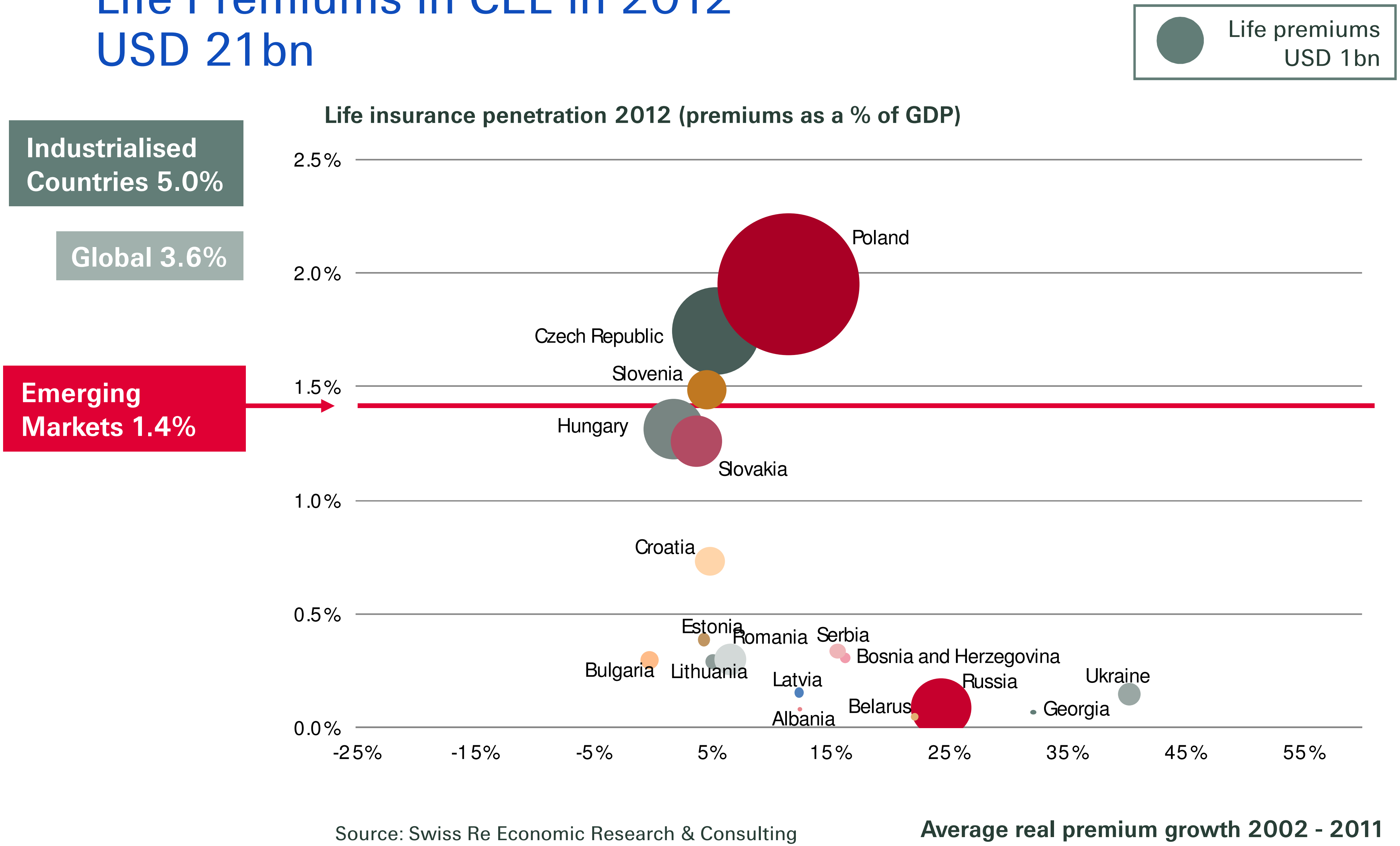
- Economic growth bottomed out in first half of 2013, with Poland for the first time growing significantly below CEE average in several years
- Growth will continue to recover in 2014 based on recovering consumption (labour markets improving, wages are increasing) and rising investment from improved business sentiment.
- The continuing recovery of western Europe will support growth in Poland over the next few years and could ignite an investment led recovery in other central European countries.

Challenges / risk

- Pension nationalisation improved government balance, but increased contingent liabilities. Since private pension funds may no longer invest in government bonds, this could lead to higher volatility/yields.
- An Escalation of the Ukraine crisis with severe economic sanctions could lead to gas supply disruption, lower exports and an oil/gas price shock and lower growth substantially in CEE.
  - Export dependency to Russia is limited (<5% of exports, 2.1% of GDP)
  - Gas interruption for Poland is less of an issue because of alternative source available.
- Policy error in the EU could lead to another recession in Europe and undermine external demand

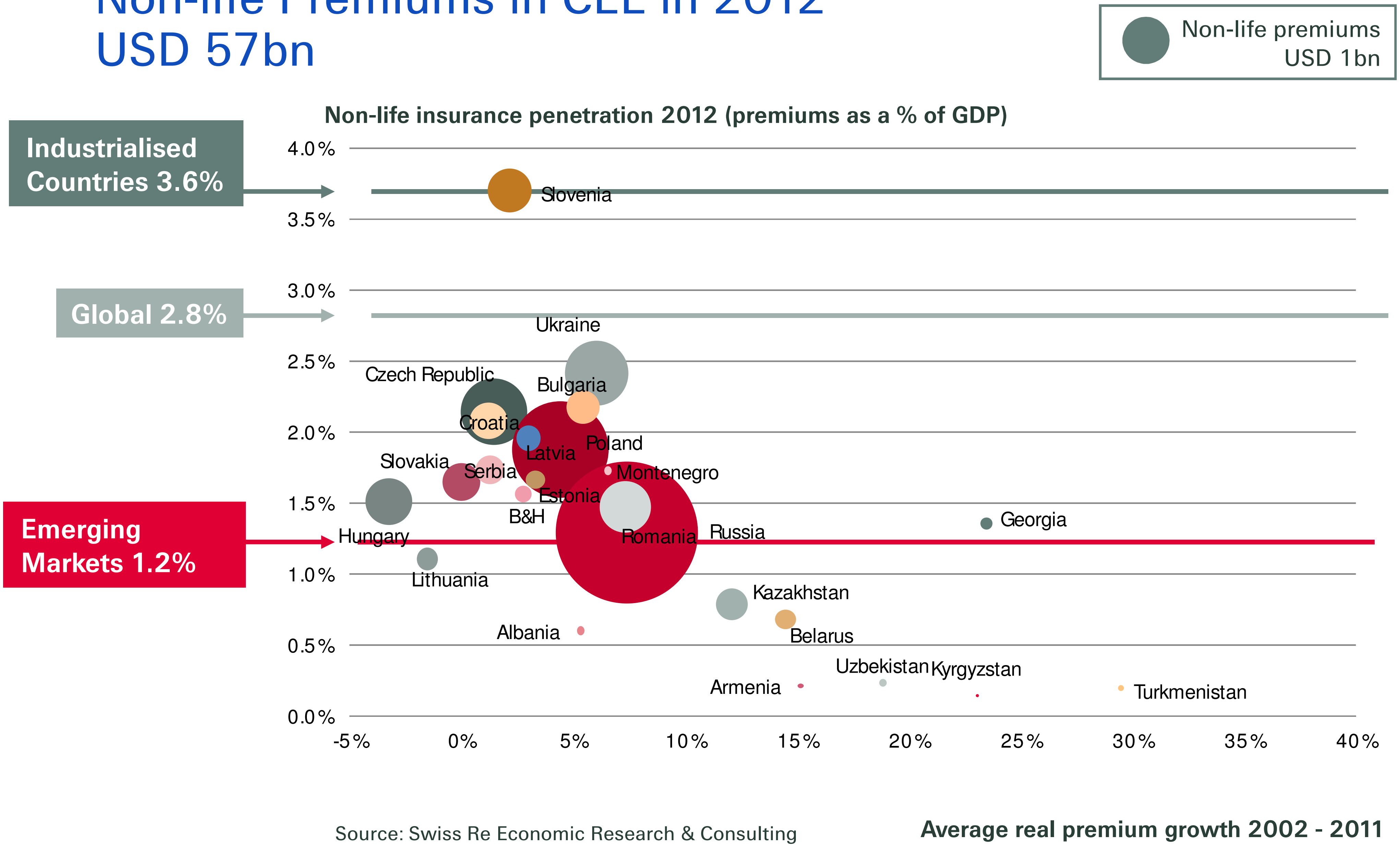
Insurance penetration in CEE

Life Premiums in CEE in 2012
USD 21bn



Source: Swiss Re Economic Research & Consulting

Non-life Premiums in CEE in 2012
USD 57bn



Source: Swiss Re Economic Research & Consulting

How interest rates affect insurers

Accounting system makes a difference (1/2): The impact of a 100 basis point increase in interest rates on insurers' shareholder equity

- Under GAAP accounting, low interest rates increase capital, since liabilities are not discounted
  - Brokers: There is excess capacity in the global re/insurance sectors
  - But, without the mark-to-market gain, the "excess" capacity disappears
  - Prices have not been reflecting an impact from this type of excess capital to any great extent

Sample	Impact on shareholders' equity, net of tax
5 global primary insurers	-11.5%
4 large reinsurers	-10.5%

Sources: Company financial statements, Swiss Re Economic Research & Consulting, *sigma* 4/2012

Accounting issues (2/2): MCEV/EEV sensitivities to a decline in interest rates by 100 basis points

- Under MCEV accounting, low interest rates do not affect capital, as long as assets and liabilities are duration matched.
  - Insurers cannot be fully duration matched, particularly after interest rates move significantly – eg, 100 bp decline in yield . EV drops by 56% for Central and Northern Europe (at end-2011), not a major issue in Japan, UK, or Southern Europe, incl France
  - Product mix makes a big difference!

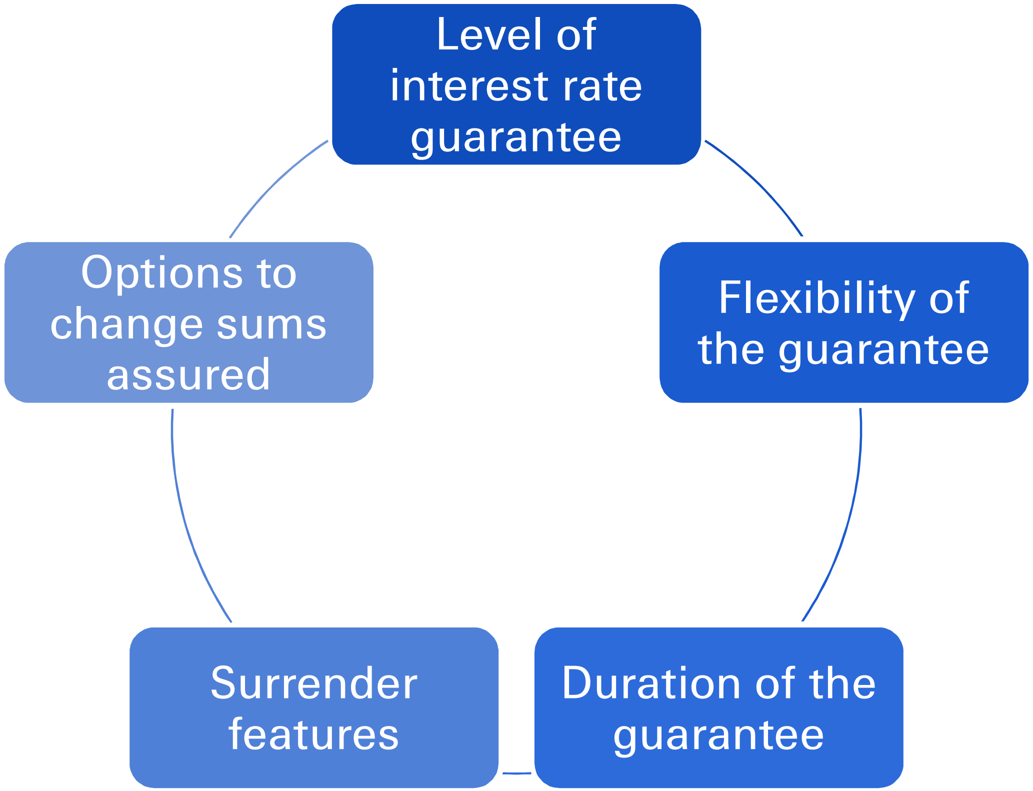
	2009	2010	2011	2012
Central and northern Europe[1]	-10.7%	-12.7%	-56.1%	-23.9%
Japan[2]	-11.7%	-10.7%	-8.0%	-16.0%
Southern Europe and France[3]	-5.2%	-3.9%	-7.9%	-8.3%
UK[4]	1.2%	1.1%	-1.6%	0.6%
Life reinsurers[5]	0.2%	0.7%	1.2%	4.6%

[1] Aegon, Ageas, Allianz, Delta Lloyds, Eureko/Achmea, Munich Re (primary life insurance book), SNS REAAL, Storebrand, Swiss Life, UNIQA, Vienna, Zurich, [2] Sony Life, Himawari Life, [3] AXA, CNP, Generali, Mediolanum, [4] Aviva, Old Mutual, Phoenix, Resolution, SJP, Standard Life, [5] Hannover Re, Munich Re (life reinsurance only), SCOR

Note: MCEV is Market Consistent Embedded Value and EEV is European Embedded Value

Sources: company MCEV/EEV reports for 2009 to 2011, *sigma* 4/2012

Which product features affect interest rate sensitivity of savings products?

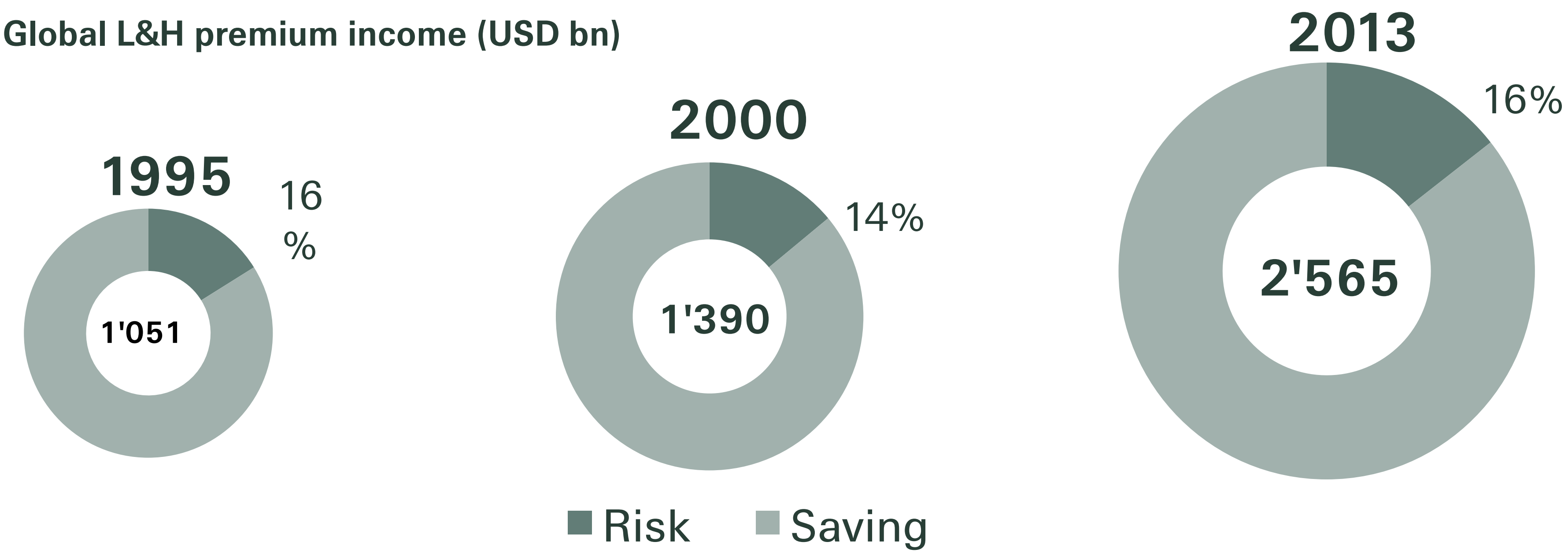


Product features are key for the exposure to policyholder action. They differ across life insurance savings products and across countries.

Source: Swiss Re Economic Research & Consulting

Life insurance product landscape still geared towards savings business ...

Global L&H premium income (USD bn)

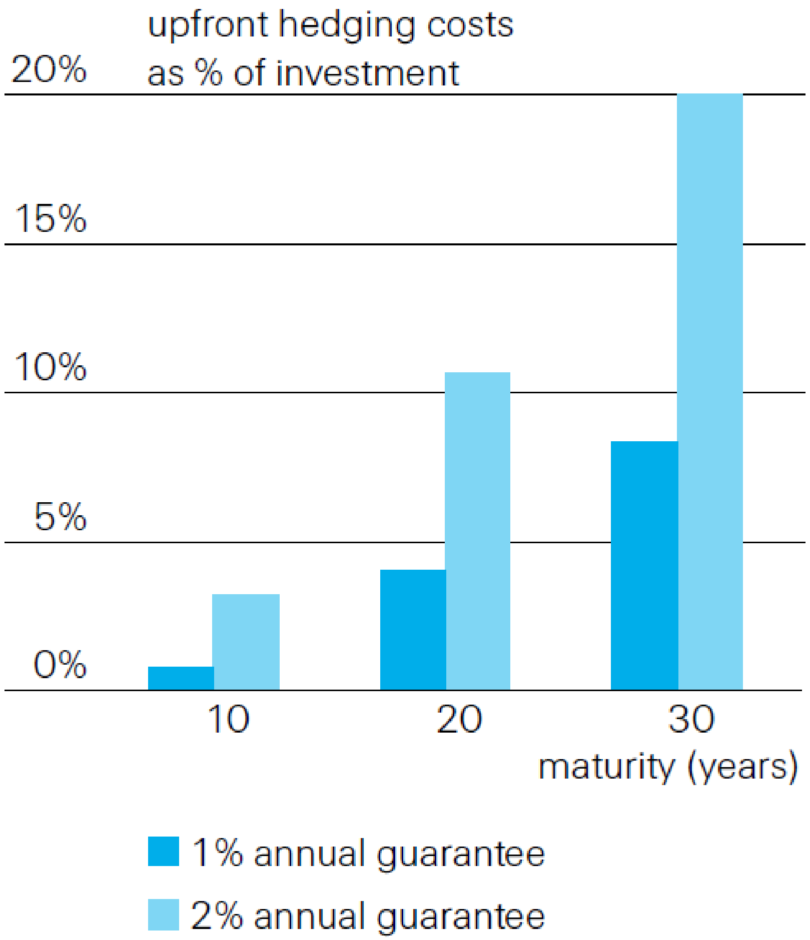


	Risk protection	Risk protection with accumulation	Savings with risk guarantees	Savings
Main risks for insurer	Mortality, Morbidity, Longevity , Lapse	Mortality, Morbidity, Longevity, Lapse , Interest rate, Equity market	Equity market, Mortality Longevity, Lapse	Interest rate, Equity market, Lapse
Main sources of profits	Underwriting result	Underwriting result Investment result	Investment result Fee income	Fee income

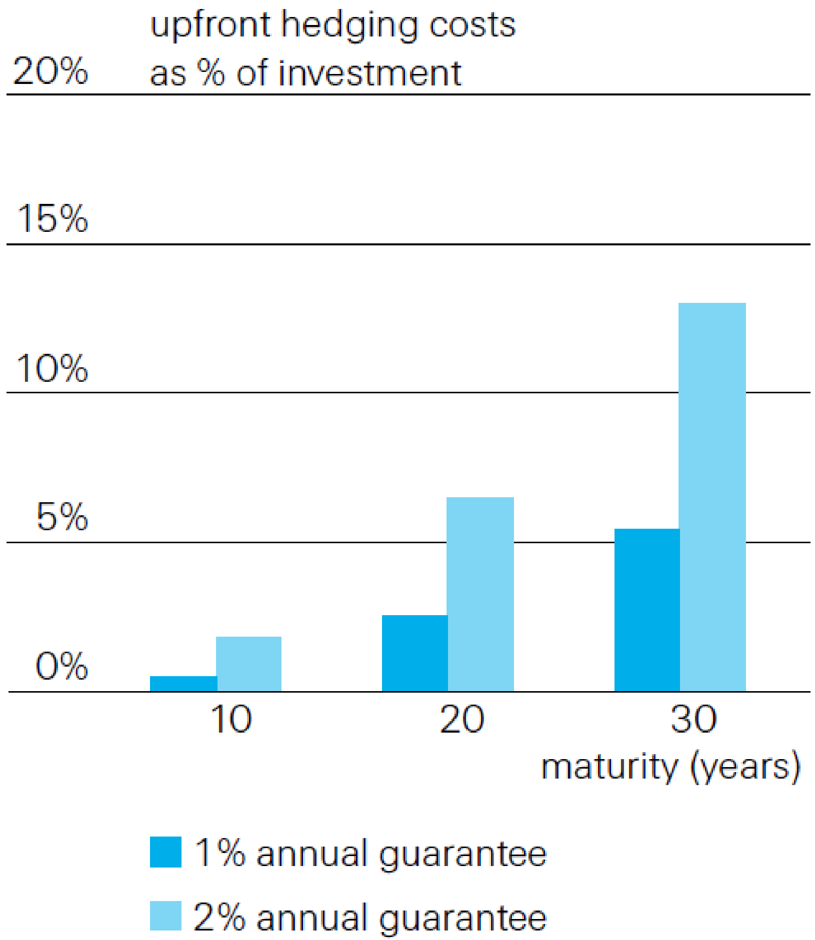
Source: Swiss Re Economic Research & Consulting

The approximate cost of guarantees at different levels and maturities

Present situation
(assuming an initial 3.3% portfolio yield)

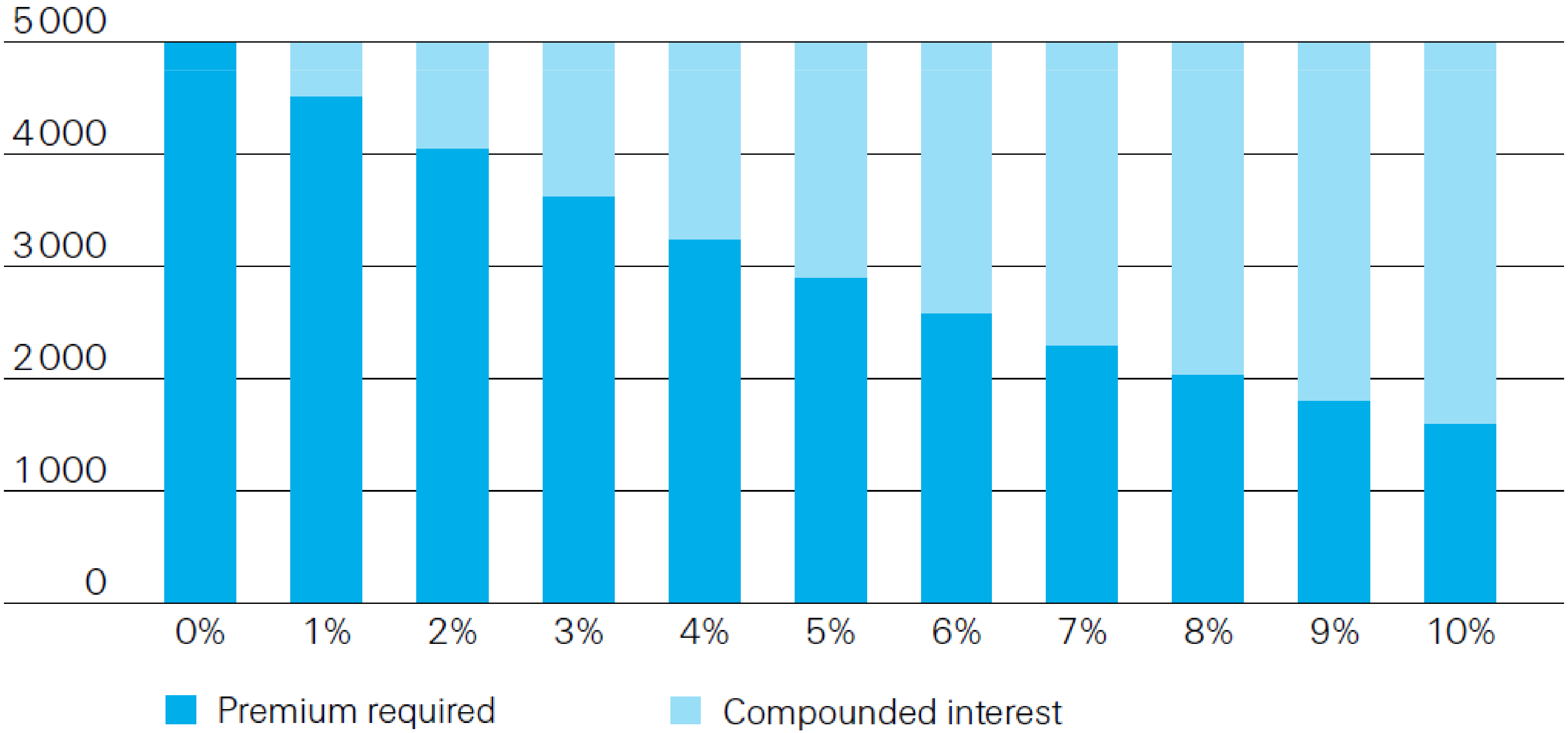


Hypothetical situation
(assuming an initial 4.3% portfolio yield)



Source: Swiss Re *sigma* 4/2012

Premiums required to fund a USD 100 000 benefit with a 20-year policy under different interest rate assumptions



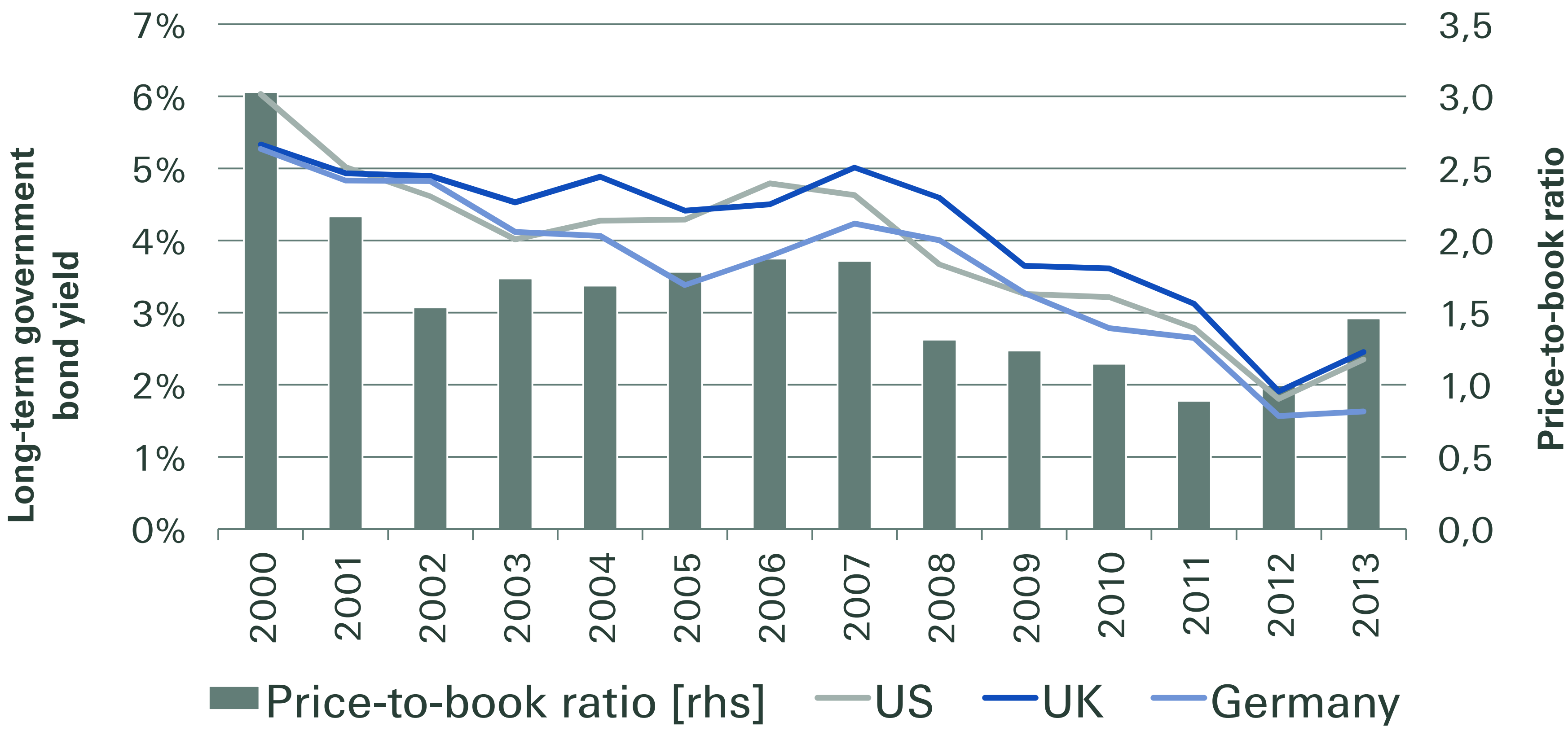
Source: Swiss Re Economic Research & Consulting, *sigma* 4/2012

Insurers are large investors and suffer from the low interest rate environment

- Insurers' financing costs are not dependent on (short-term) interest rates because their main source of funding is premiums. Thus, there is no benefit from expansionary monetary policy for insurers.
- However, insurers' investment returns are dependent on bond yields since insurers hold large amounts of government and corporate bonds.
- With insurers' investments totalling USD 27 000 billion, an interest rate drop of one percentage point means a loss of USD 270 billion investment income once the portfolio has turned over completely.
- In addition, insurers write – implicitly or explicitly – interest rate guarantees in non-life and life products.

Negative impact of low interest rates is reflected in declining valuations for insurance companies

Insurer price-to-book values and long-term interest rates



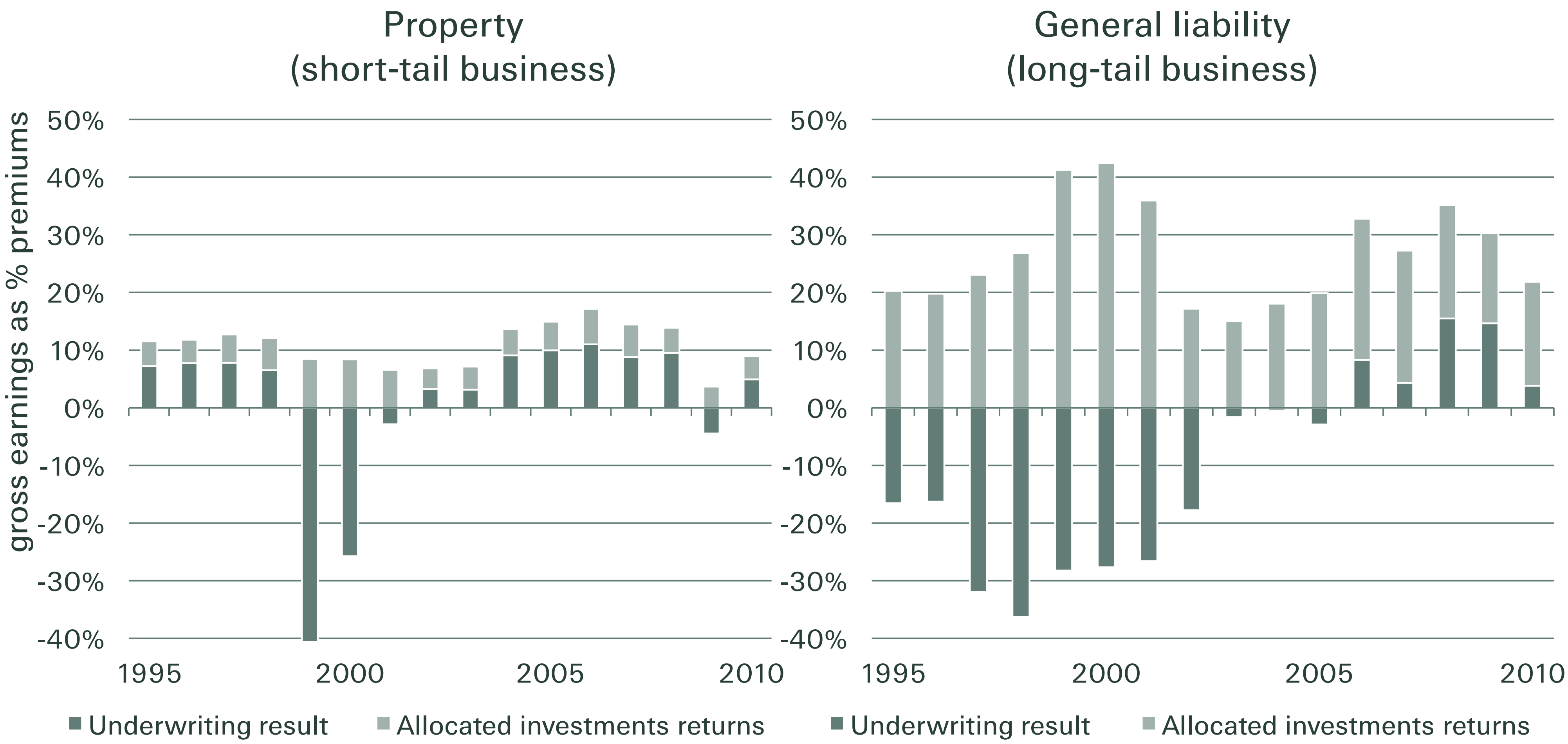
Note: The company sample includes Generali, Prudential PLC, Great-West Life, Aflac, Lincoln, Protective Life, Torchmark, Legal & General, Swiss Life, Allianz, AXA, CNP, Helvetia, Hartford, Met Life, and Sun Life.

Sources: Bloomberg, Swiss Re Economic Research & Consulting

What makes insurance business interest rate sensitive?

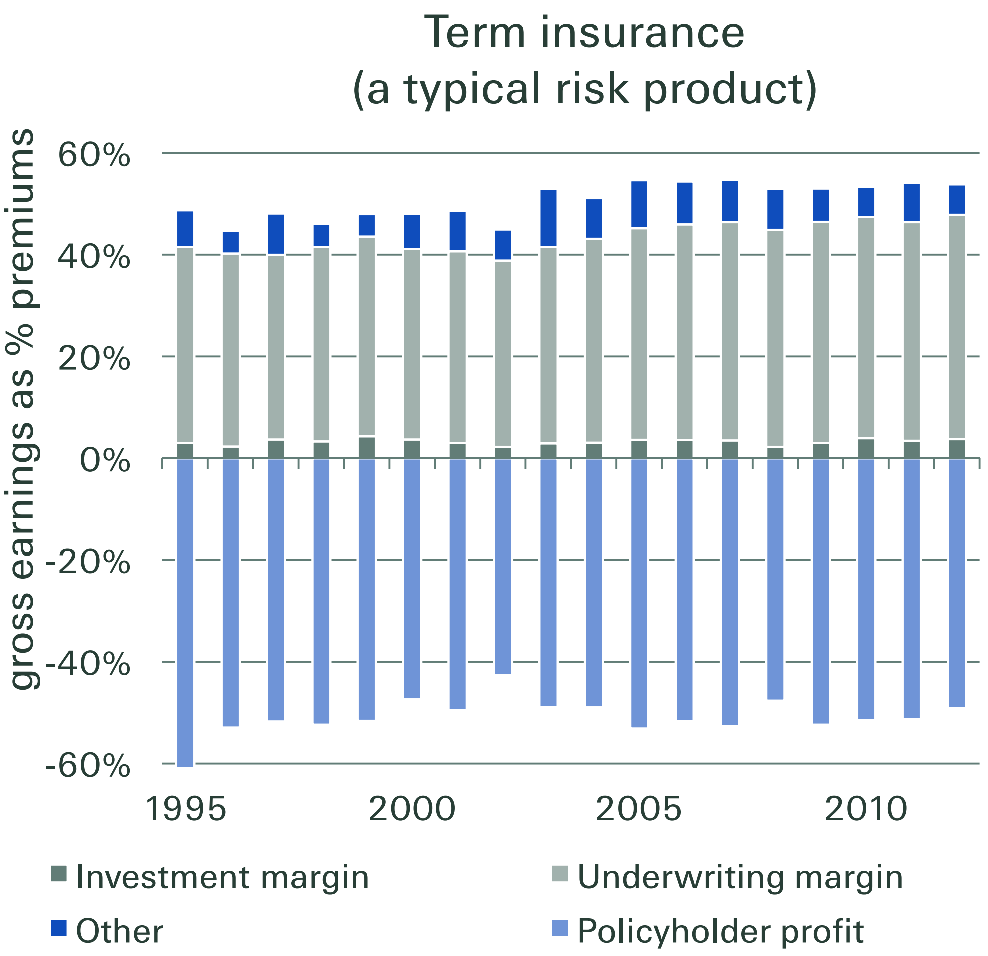
- Importance of investment income as source of profit
  - Differs by line of business: less important for short-tail P&C and life protection products, significant for long-tail P&C and life savings and pension products
  - In life insurance: asymmetric profit sharing rules exacerbate interest rate sensitivity because upside is shared, but all the downside is borne by shareholders
- Ability to hedge interest rate risks
  - Limited availability of long-term securities and derivatives in combination with long-term interest rate guarantees and pricing assumptions
  - Policyholder behaviour may foil cash flow predictions and hence ALM and hedging strategies

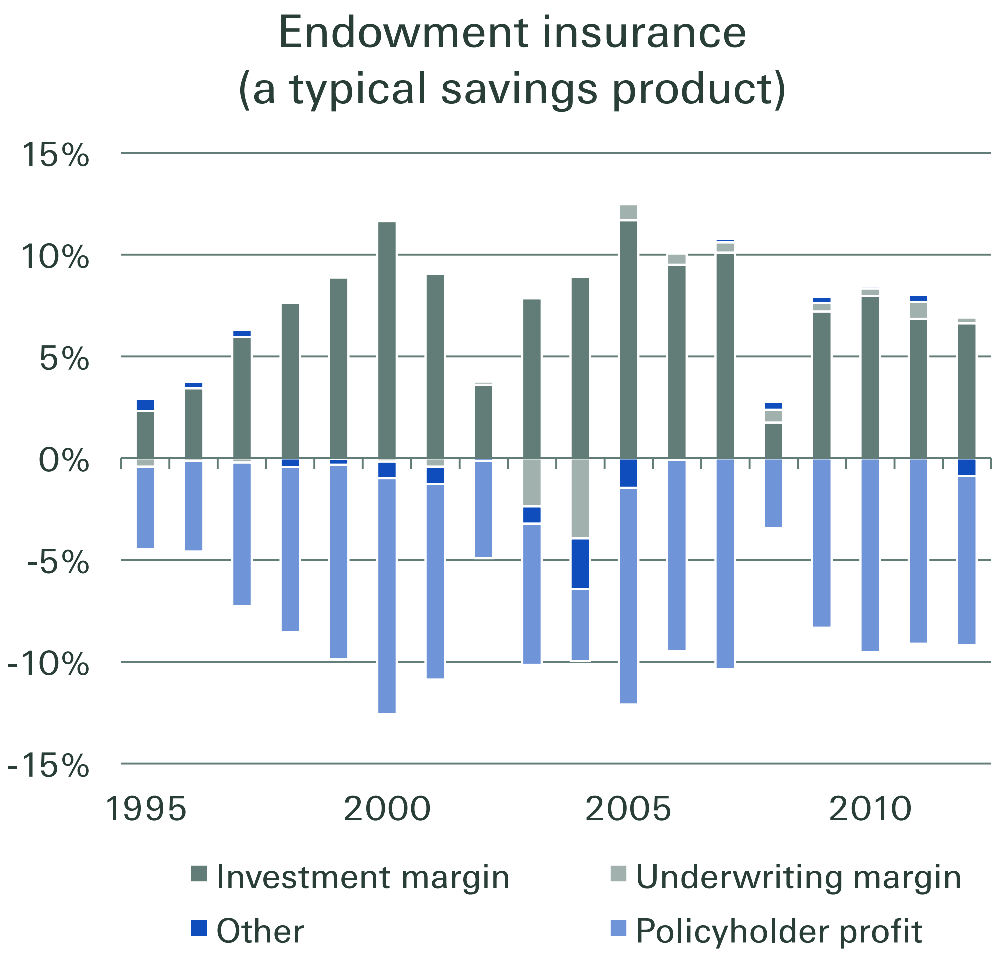
Non-life insurance: Investment returns are more important for long-tail than for short-tail business



Note: Data refers to French market
Sources: FFSA and Swiss Re Economic Research & Consulting, , *sigma* 4/2012

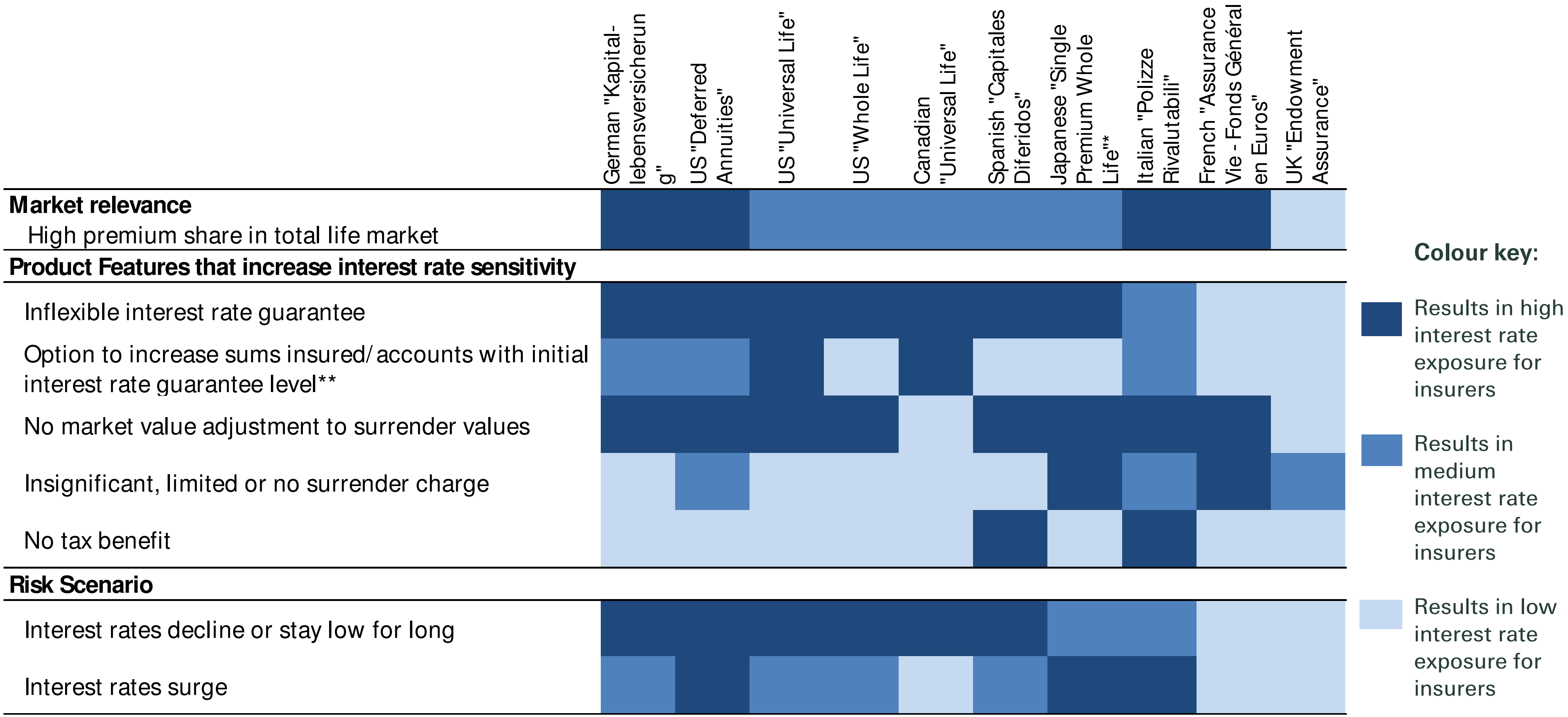
Life insurance:
Investment income is more important for savings than for risk products





Note: Data refers to German market
Sources: BaFin and Swiss Re Economic Research & Consulting, , *sigma* 4/2012

Significant differences in life insurers' interest rate exposure in key markets

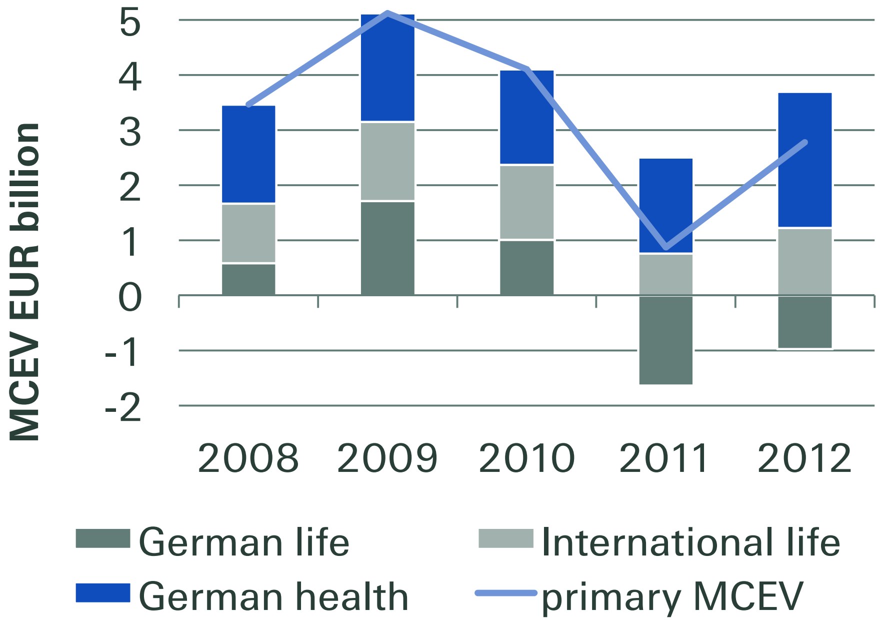


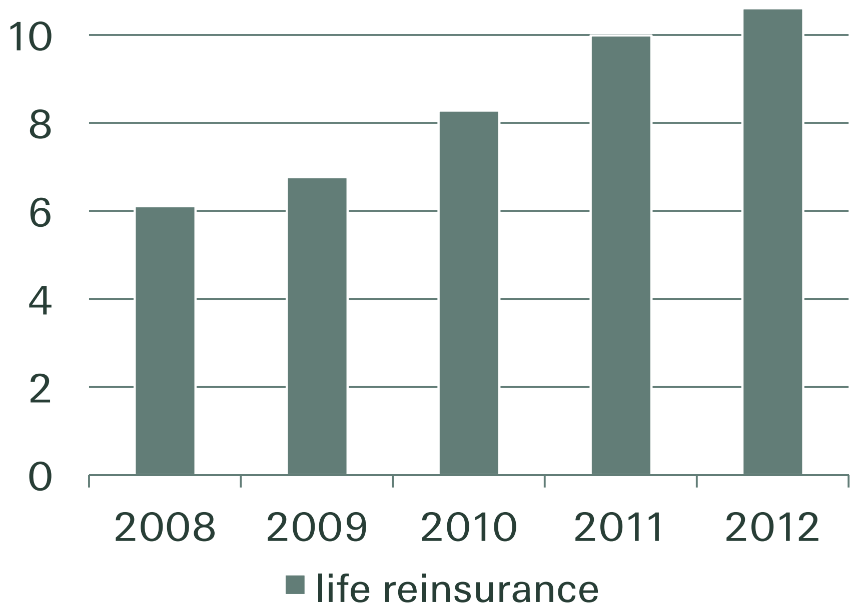
* Sums insured in the first five to ten years are limited to the single premium payment.
** These options are available depending on the contract terms or only on special occasions such as marriage or the birth of a child.

Source: Swiss Re Economic Research & Consulting, *sigma* 4/2012

A real world example: Are interest rate risks hedged? Can they be hedged?

primary life insurance					life reinsurance				
interest rate sensitivity Δ-100bps					interest rate sensitivity Δ -100bps				
-45%	-23%	-40%	-458%	−138%	7.2%	3.9%	3.1%	2.3%	3.7%





For some life insurance savings products, hedging is a challenge

Sources: a global reinsurer's MCEV/EEV reports

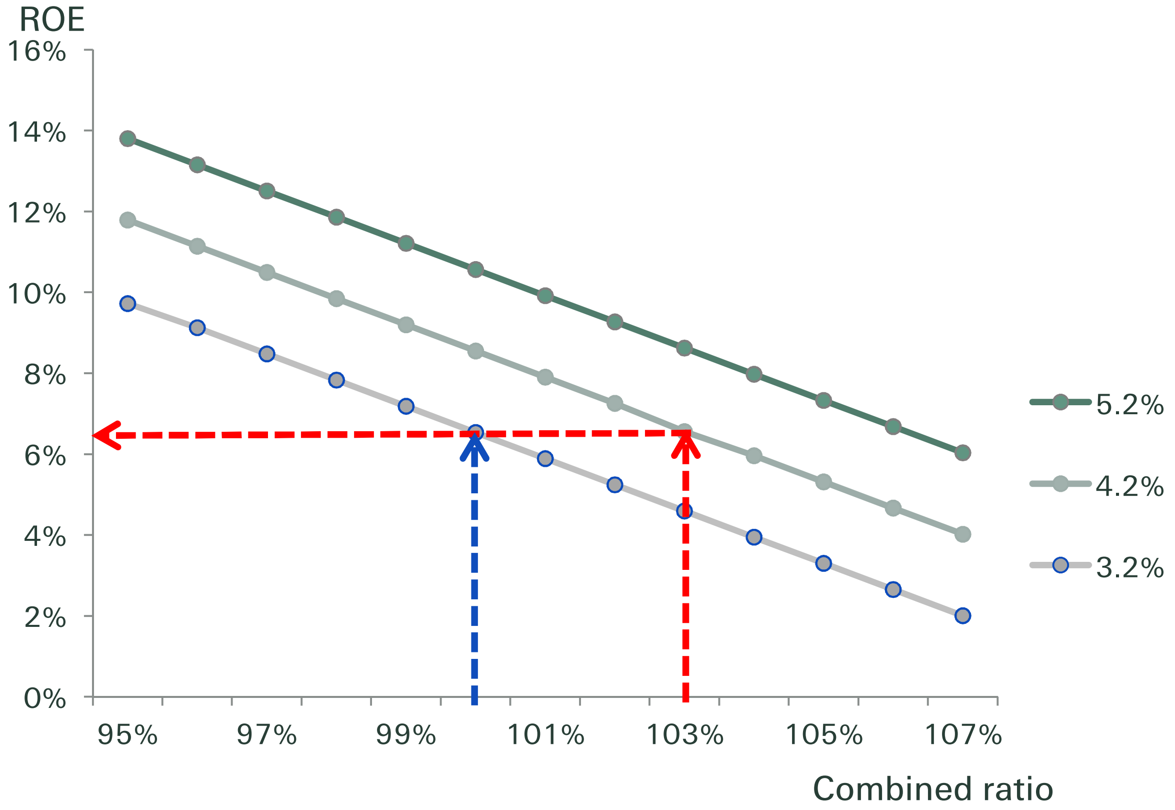
How can insurers deal with the current low interest rate environment?

How can non-life insurers deal with the current low interest rate environment?

- If low nominal interest rates reflect lower inflation, the negative effect from lower investment yields is fully compensated by lower claims
- If the drop in interest rates is not only due to change in inflation (today's situation with declining real interest rates), insurers need to charge higher premium rates to compensate for lower investment yields.
  - In theory, this should be possible since there are usually no substitutes for non-life insurance products
  - In practice, insurers are reluctant to take investment returns fully into account for pricing, for fear of losing clients

A prolonged period of low interest rates is usually unfavourable for non-life insurers' profitability

Non-life insurers can compensate for lower yields with a lower combined ratio



2012 US industry assumptions:

Asset leverage:	311%
Effective tax rate	14%
NPW/ avg. surplus	77%

2012 ROE was 6.5%; total yield was 4.2%, and CR 103%

To offset a drop of 100 bps in investment yield, the combined ratio needs do drop ~ 3 points

Insurance prices must be adjusted to preserve/restore profitability

Source: Swiss Re Economic Research & Consulting

How can life insurers deal with the current low interest rate environment?

- In force business
  - Use ALM and hedging homework - improve understanding of policyholder behaviour
  - Manage operational costs
  - Offer exchange of interest rate sensitive policies
- New business
  - Product design: review product features and options that are key for policyholder behaviour and interest rate sensitivity
  - Learn from other countries: what proved to be marketable and hedgeable
- Rebalance policyholders' willingness to pay and costs of guarantees
  - What are the economic costs of guarantees, what are consumers willing to pay?
  - Concentrate on options and guarantees that create value and can be effectively hedged

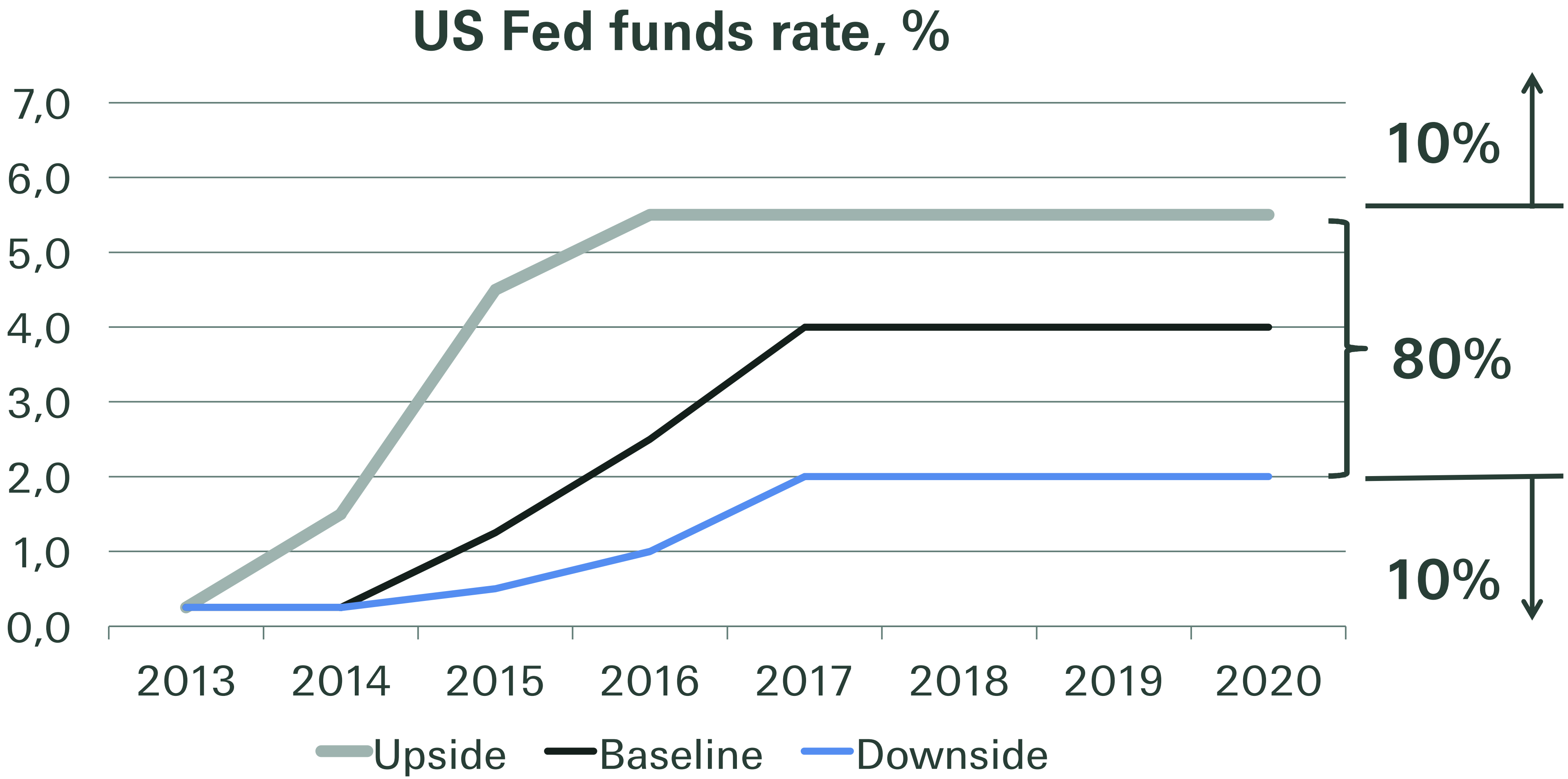
⇨ Assure "hedgeability" through understanding policyholder behavior and optimizing guarantees and options

Scenarios and conclusions

Summary of scenarios

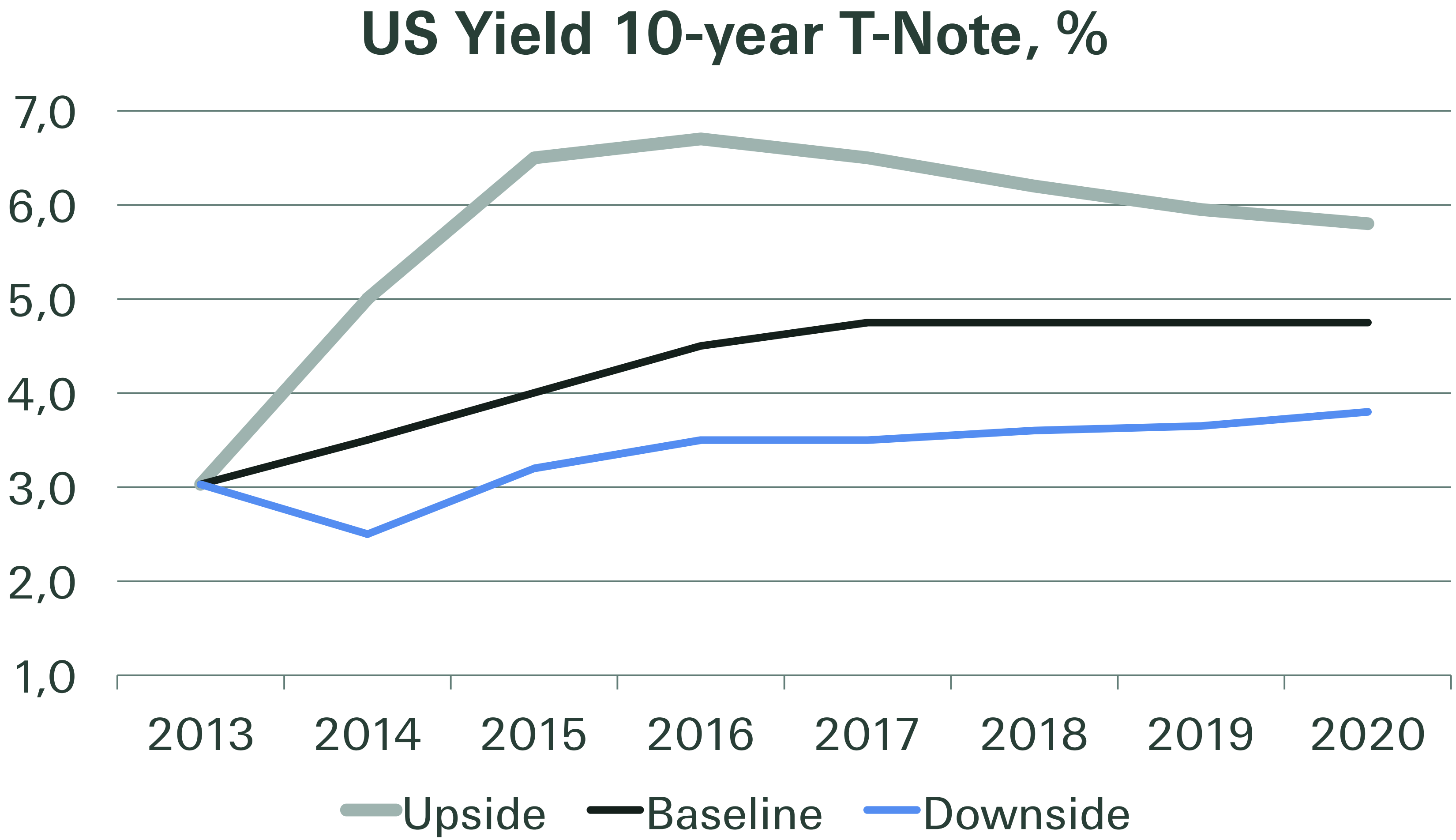
- Three planning scenarios – High/Low/Base = Upside/Downside/Baseline
  - Baseline (80% probability)
  - Low growth scenario would be expected if Europe stagnates, US productivity is crippled (10%)
  - Upside happens with US housing boon, structural reforms in Europe (10%)

Base and planning scenarios: Policy rate spreads are substantial



Sources: Swiss Re Economic Research & Consulting.

Base and planning scenarios: Some reversion to mean by 2020 for 10yr Note



Sources: Swiss Re Economic Research & Consulting.

Conclusions

- The declining/low interest rate environment affects all insurers, but the impact becomes visible only very slowly
- For P&C insurance, interest rate risks can be managed with ALM – the main risk for P&C is unexpected inflation
- Repricing of P&C business is sufficient to maintain profitability, but depends on market conditions
- Life insurance savings business is most exposed to interest rate risks because investment income is the key source of earnings and policyholder behaviour may foil hedging strategies
- Interest rate risk sensitivity is driven by product features such as the level, duration and flexibility of the guarantees and options that allow policyholders to opportunistically adjust their insurance cover
- Life insurers need to go beyond adjusting guarantee levels – they need to reassess their value proposition and change product design

Swiss Re

Thank you

To receive your copy of sigma publications, email sigma@swissre.com or visit www.swissre.com/sigma

SWISS RE
150
YEARS

Legal notice